

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT207	FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/IT2004/000708	International filing date (day/month/year) 17.12.2004	Priority date (day/month/year) 18.12.2003
International Patent Classification (IPC) or national classification and IPC INV. B60B21/06		
Applicant ALPINA RAGGI S.P.A.ET AL		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 18.10.2005	Date of completion of this report 06.04.2006	
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer Verkerk, E Telephone No. +31 70 340-4344	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IT2004/000708

Box No. I Basis of the report

1. With regard to the **language**, this report is based on

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-10 as originally filed

Claims, Numbers

1-24 received on 30.12.2005 with letter of 28.12.2005

Drawings, Sheets

1/9-9/9 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IT2004/000708

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1,8-14,19,20,22,23
	No: Claims	2,3-7,15-18,21,24
Inventive step (IS)	Yes: Claims	1,8,22,23
	No: Claims	2-7,9-21,24
Industrial applicability (IA)	Yes: Claims	1-24
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.:

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1 : PATENT ABSTRACTS OF JAPAN vol. 2000, no. 08, 6 October 2000 (2000-10-06) -&; JP 2000 127701 A (SUMITOMO RUBBER IND LTD), 9 May 2000 (2000-05-09)

D2 : PATENT ABSTRACTS OF JAPAN vol. 013, no. 425 (M-873), 21 September 1989 (1989-09-21) -&; JP 01 160701 A (YAMAHA MOTOR CO LTD), 23 June 1989 (1989-06-23)

2. INDEPENDENT CLAIM 2

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 2 is not new in the sense of Article 33(2) PCT.

- 2.1 Document D1 discloses in the abstract and figure 2 (the references in parentheses applying to this document):

A spoked wheel (1) including a rim (3) with a plurality of holes (10) for a respective plurality of nipples (15) and an equal plurality of spokes (11) secured to said rim (3) by means of said nipples (15), where each nipple (15) is fitted so as to be substantially gastight into the respective hole (10) in the rim (3) and retained in said hole (10) by means of axial bidirectional locking means (15B,16).

The subject-matter of claim 2 is therefore not novel.

- 2.2 It is remarked that if the Applicant intends to express that the novelty of claim 1 lies in the fact that the nipple is made gastight by a seal placed into the hole, such as shown in figure 5 in the present application, this does not follow from the wording of claim 2. First of all, the usual way to understand the phrase "each nipple is fitted so as to be substantially gastight into the respective hole" would be to let 'into' refer to 'fitted', i.e. "each nipple is fitted into the respective hole so as to be substantially gas-tight". This is because 'into' refers to a movement/direction which is to be associated with 'fitted'. In order to indicate the location itself, 'inside' should have been used with some

additional features clarifying what is meant precisely.

Secondly, 'each nipple is fitted so as to be substantially gastight into the hole' is understood as a nipple that is located in a hole in a gas-tight manner, which in fact is shown in document D2.

Thirdly, 'substantially gastight' is an unclear expression.

Fourthly, beside the fact that the subject-matter of claim 1 is not novel, it is also remarked that even if the line of reasoning of the Applicant was followed, fitting something so as to be substantially gastight into a hole is known, see document D1, where silicone grease is applied.

- 2.3 For the abovementioned reasons, the examiner remains of the opinion that claim 2 is not novel.

3. INDEPENDENT CLAIM 1

The subject-matter of new independent claim 1 seems to fulfill the requirements of Article 33(1) PCT, because it is new, inventive and industrially applicable (Articles 33(2), 33(3) and 33(4) PCT).

- 3.1 The document D2 is regarded as being the closest prior art to the subject-matter of claim 1, and shows in the abstract and figure 2 (the references in parentheses applying to this document):

A spoked wheel including a rim (3) with a plurality of holes (9) for a respective plurality of spokes (11) secured to said rim (3) by being fitted so as to be substantially gastight by screwing into the respective holes in the rim for the purpose of fitting tubeless tyres to the rim.

The subject-matter of claim 1 differs from this known spoked wheel in that the spokes are secured by means of nipples screwed in the holes, where said nipples and the holes receiving them on said rim have a taper gas thread in the sections where they fit together.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing a gas-tight connection for the spokes in the rim.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Usually further sealing means are required to ensure a gas-tight connection, here the taper gas thread is sufficient.

The combination of the features of claim 1 is neither known from, nor rendered obvious by, the available prior art.

4. DEPENDENT CLAIMS 3-7, 9-21, 24

When depending on claim 2, dependent claims 3-7, 9-21, 24 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

5. When depending on claim 1, claims 3-24 meet the requirements of the PCT with respect to novelty and inventive step.

It is noted for claims 8, 22 and 23, when depending on claim 2, that the subject-matter of these claims is not disclosed in, or rendered obvious by, the available prior art. Therefore, also in that case they seem to meet the requirements of the PCT with regard to novelty and inventive step.

6. The subject-matter of the claims relates to a rim-spoke connection, and is industrially applicable in for instance bicycle wheels.

CLAIMS

1. A spoked wheel including a rim with a plurality of holes for a respective plurality of nipples, and an equal plurality of spokes secured to said rim by means of said nipples, said nipples [are]
5 being arranged to be fitted so as to be substantially gastight by screwing into the respective holes in the rim for the purpose of fitting tubeless tyres to the rim, characterized in that said nipples and the holes receiving them on said rim have a taper gas thread in the sections where they fit together.
- 10 2. A spoked wheel including a rim with a plurality of holes for a respective plurality of nipples and an equal plurality of spokes secured to said rim by means of said nipples, characterized in that each nipple is fitted so as to be substantially gastight into the respective hole in the rim and retained in said hole by means of
15 axial bidirectional locking means.
3. A wheel according to claim 1 or 2, in which said rim is of the single-channel type.
4. A wheel according to any one of claims 1 to 4 in which further sealing means are inserted between the thread of the holes in said
20 rim and the thread on the shank of said nipples.
5. A wheel according to claim 5 in which said further sealing means comprise adhesives or sealants.
6. A wheel according to claim 5 in which said further sealing means comprise a seal.
- 25 7. A wheel according to one or more of the preceding claims in which

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said nipples comprise a hole into which a respective threaded end of the stem of the spoke is screwed and retained.

8. A wheel according to one or more of claims 1 to 6 in which said nipples comprise a threaded stem screwed into and retained in a
5 respective threaded hole made in the end of the spoke facing them.

9. A wheel according to one or more of the preceding claims in which said spoke has a light alloy stem.

10. A wheel according to one or more of the preceding claims in which
10 said spoke has a steel stem.

11. A wheel according to claim 5 or following in which a seating for a seal is made in the shank of said nipples.

12. A wheel according to claim 12 in which said seating for a seal is made in an intermediate position on said threaded section and said
15 seal provides sealing on the thread of the hole in the rim.

13. A wheel according to claim 12 or 13 in which said seal is of the O-ring type.

14. A wheel according to one or more of claims 9 to 14 in which the spoke is held abutted against the nipple as an extension of it.

20 15. A wheel according to one or more of the preceding claims in which the nipple has a blind axial hole running through it.

16. A wheel according to one or more of the preceding claims in which said nipple has a head shaped to provide a key feature for driving the nipple.

25 17. A wheel according to one or more of the preceding claims in which

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said bidirectional axial locking means comprise a shoulder at one end of the shank of the nipple and also a thread on the shank of the nipple which can engage with a female thread to hold said nipple on the rim with said shoulder abutting against said rim.

- 5 18. A wheel according to claim 18 in which said seal is fitted onto the shank of the nipple close to said shoulder.
19. A wheel according to claim 19 in which a seating coaxial with the hole and intended for fitting said seal is arranged in the hole in the rim.
- 10 20. A wheel according to claim 20 in which said seating has a substantially cylindrical wall and forms an abutment for said shoulder.
21. A wheel according to one or more of claims 18 to 21 in which said female thread is made in a nut screwed onto the shank of the nipple to grip said rim between said nut and said shoulder.
- 15 22. A wheel according to one or more of the preceding claims in which surfaces facing each other between said nipple and a larger-diameter part of the stem of the spoke are held apart by the formation of a space between them.
- 20 23. A wheel according to claim 23 in which a deformable seal is inserted in said space.
24. A wheel according to one or more of the preceding claims in which each nipple is connected to the corresponding spoke by a pivoting attachment.